

Remarks

Claims 1, 3 and 20 have been amended with the details set forth in Attachment I (Version with Markings to Show Changes Made). New Claims 29 - 34 have been added.

Claim Objection

The objections to Claim 1 have been overcome by the amendments thereto.

The 35 USC 112 Rejection

Claims 3 and 20-28 are rejected under 35 USC 112, second paragraph as being indefinite. Claims 3 and 20 have been amended to overcome the objections thereto. As to Claims 23 and 20, the last line of Claim 20 reads "between said injection point and said cathode", while Claim 23 reads - - from said injection point to said anode. Thus, Claim 23 further limits Claim 20. In view of the amendments to Claims 3 and 20 and the above comment relative to Claim 23, this rejection should be withdrawn.

The 35 USC 102 Rejection

Claims 1-5, 9-15, 18 and 19 are rejected under 35 USC 102(e) as anticipated by Simpson et al. Claim 1 sets forth that each channel has and injection point connected to each of a sample well, a waste well, the cathode, and an anode, as clearly shown at injection point 10 in Fig. 3. This feature is not taught in this reference. Thus, the reference fails to support the rejection of these claims under 35 USC 102, and the rejection should be withdrawn.

The 35 USC 103 Rejections

Claims 6-8 are rejected under 35 USC 103(a) as unpatentable over Simpson et al in view of Zanzucchi et al. Claims 6-8 depend from Claim 1. As pointed out above, Simpson et al fails to teach the features of parent Claim 1. Zanzucchi et al also fails to teach this feature. Thus, to make the wells of Simpson et al “square” for which Zanzucchi et al was applied, would not teach or suggest the load array of Claims 6-8, and thus this rejection should be withdrawn.

The Office Action, at the bottom of page 5, addresses Claims 16 and 17, but these claims are not included in the rejection as set forth. Again, these claims depend from Claim 1. Note that the Examiner states that Simpson et al “each channel having an injection point with one well of the array of sample wells, the cathode and the anode”. Where in Simpson et al is the injection point connected with one well of the array of waste wells, as set forth in Claim 1. Such simply does not exist in this reference. If the Examiner intended to include Claims 16 and 17 in the rejection of Claims 6-8, the rejection would fall for the same reasons set forth above, as to parent Claim 1.

Claims 20, 21, 23 and 27 are rejected under 35 USC 103(a) as unpatentable over Simpson et al. Claim 20, like Claim 1 as discussed above, sets forth “an injection point” interconnecting “a sample well, a waste well, a cathode and an anode”, which feature is not taught or suggested by Simpson et al, and the Examiner recognizes in the comments relative to Claims 16 and 17 that the injection point of Simpson et al is only connected to a sample well, the cathode, and the anode. Claim 21, 23 & 27 depend from Claim 20. Thus, this rejection is improper and should be withdrawn.

Claims 22, 24, 25 and 28 are rejected under 35 USC 103(a) as unpatentable over Simpson et al in view of Zanzucchi et al. These Claims depend from Claim 20, and as pointed out above Simpson et al fails to teach or suggest the features of the parent claim. Thus, the make the wells “square” as relied on Zanzucchi et al to teach, fails to

teach or suggest the features of these claims. Thus, the rejection thereof should be withdrawn.

Conclusion

In view of the amendments to the claims and the foregoing comments, each objection and rejection is believed to have been overcome. New Claims 29-34 depend from Claim 1 and set forth additional features not taught or suggested by the applied references. Thus, this application is in condition for allowance based on Claims 1-34.

Respectfully submitted,

Dated: 5-1-02

L.E. Carnahan

L.E. Carnahan
Agent for Applicants
Registration No. 20,555
Tel. No. (925) 422-5024

Enclosure:
Attachment I
Fee Authorization For Amendments with
Additional Claims

Attachment I
S.N. 09/538,354
Version with Markings to Show Changes Made

In The Claims:

Claims 1 and 2 have been amended as follows:

1. (Amended) A microchannel Cross load array, comprising:

a cathode,

an array of sample well,

an array of waste wells, said sample wells[well] comprising twice the number of waste wells,

an anode, and

an array of functionally identical channels, each channel having an injection point connected with one well of said array of sample wells, connected with one well of said array of waste wells, connected with said cathode and connected with said anode.

3. (Amended) The microchannel Cross load array of Claim 1, wherein said sample wells [with parallel sides] are selected from the group to define substantially circular holes, tapered holes, and holes.

20. (Amended) An architecture for microchannel arrays using T or Cross loading for injection and separation chemistry applications performed in microfluidic configurations,

said architecture producing a dense layout of functionally identical shaped microchannels, sample wells, and waste wells, and including a common cathode and a common anode,

said microchannels each having an injection point interconnecting a sample well, a waste well, a cathode and an anode,

said microchannels each defining equal length flow paths between said injection point and said waste well, and between said injection point and said cathode.

New Claims 29-34 have been added.

29. The microchannel Cross load array of Claim 1, wherein said array of functionally identical channels comprises at least one pair of functionally identical channels.

30. The microchannel Cross load array of Claim 1, wherein said array of functionally identical channels comprises a plurality of pairs of functionally identical channels.

31. The microchannel Cross load array of Claim 30, wherein each of said plurality of pairs of functionally identical channel have a common waste well.

32. The microchannel Cross load array of Claim 1, wherein each of said array of functionally identical channels have a same length from said injection point to said sample well, to said waste well, to said cathode, and to said anode.

33. The microchannel Cross load array of Claim 31, wherein said common waste well is positioned in alignment with at least one sample well.

34. The microchannel Cross load array of Claim 31, wherein said common waste well is located in an offset position relative to at least one sample well.